IN THE CLAIMS

Please cancel claims 1-89 without prejudice or disclaimer; and add a claim and amend or cancel the other claims as follows:

The currently pending and amended claims are below. Please amend the claims following wherein deleted material is indicated by strikethrough (or duplicate brackets) and wherein the added matter is shown by underlining.

Claims 1-89 (cancelled)

90. (currently amended) The method of claim 124 [[89]], wherein retinoic acid is selected from the group consisting of 9-cis retinoic acid, all transretinoic acid and a mixture thereof.

Claims 91- 93 (canceled)

94. (currently amended) The method of claim 124 [[93]], wherein the progenitor cells are isolated from the mononuclear cells using a magnetic cell separator to separate out cells expressing a particular CD marker.

95. (previously amended) The method of claim 94, wherein the progenitor cells do not express CD34.

Claims 96-123 (canceled)

124. (newly presented) A method of producing an isolated, differentiated, mononuclear cell from human umbilical cord blood, comprising:

(a) obtaining a sample of mononuclear cells from the umbilical cord blood, wherein the mononuclear cells comprise progenitor cells;

(b) growing the mononuclear cells in a serum-free medium consisting of EGF, bFGF, pokeweed mitogen, Ara-C or a combination thereof to produce an enriched fraction of progenitor cells; and

(c) culturing the progenitor cells in a culture medium containing an effective amount of a differentiation agent for a period sufficient to differentiate the progenitor cells to cells of interest, wherein the differentiation agent comprises retinoic acid and another agent selected from the group of BDNF, NGF, and GDNF;

wherein the cells of interest exhibit both an increase in the expression of genes associated with neurogenesis and a decrease in the expression of genes associated with hematopoiesis in comparison to an umbilical cord blood cell that has not been cultured in the presence of the differentiation agent.